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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,878	02/23/2004	Louis B. Rosenberg	IMMR-086/02US	7078

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EXAMINER

FOULADI SEMNANI, FARANAK

ART UNIT PAPER NUMBER

2674

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/782,878	Applicant(s) ROSENBERG ET AL.	
	Examiner Faranak Fouladi	Art Unit 2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02/23/04; 10/07/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to communications: application, filed on 02/23/04; Preliminary Amendment, filed On 02/23/04.
2. Claims 1-36 have been cancelled and new claims 37-58 have been added.
3. Claims 37-58 are pending in the case, with claims 37, 44, 49, 55, 57 and 58 being independent.
4. The present title of the application is "Designing Force Sensations for Force Feedback Computer Applications".

Information Disclosure Statement

5. The information disclosure statements (IDS) submitted on 02/23/04 and on 10/07/04 are considered by the examiner.

Double Patenting

- ◆ The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 37, 38 and 57 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,697,086. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of U.S. Patent No. 6,697,086 discloses:

“A method for graphically allowing a user to adjust the feel of a simulated surface sensation, said method comprising:

displaying a graphical surface that is representative of a **force output at different displacements of a user manipulatable object of a force feedback interface device, wherein said force represents the feel of engaging said graphical surface”**

“a graphical surface that is representative of a force output “ is the same as graphical representation of the force profile of the force output (or the first haptic force), specification page 32 lines 29-33, therefore, this part is the same as the first part of the independent claim 37 of application under examination that states “outputting a signal associated with a haptic force associated with a force profile, the force profile being associated with a **graphical representation for display** within a graphical user interface.

Claim 1 of U.S. Patent No. 6,697,086 also discloses:

“providing control points on said graphical surface that **can be manipulated** by said user **to modify the feel** of said simulated surface sensation;”

According to “The American Heritage® Dictionary of the English Language”, Fourth Edition Copyright © 2000 by Houghton Mifflin Company and Published by Houghton Mifflin Company, “Manipulate” means “To move”, therefore manipulating the control points means moving the control points; and “Modify” means “To change”, therefore “to modify the feel” means “to change the feel”. Since **force** represents the **feel** of engaging graphical surface, therefore **modifying the feel** would result in modifying the **force**; and since a graphical surface is representative of the force profile therefore modifying the feel of simulated surface sensation would result in changing the force profile. When the force profile changes, it means “the first force profile” changes to the “second force profile”.

Therefore, this part of the claim 1 of U.S. Patent No. 6,697,086 is the same as the second part of the independent claim 37 of application under examination that states “receiving a control signal associated with a movement of a control point of the graphical representation, **the movement of the control point operative to change the first force profile to a second force profile**”.

The last part of claim 1 of U.S. Patent No. 6,697,086 discloses:

“causing said simulated surface sensation to be output by actuators of said force feedback interface device coupled to a host computer such that

said actuators of said force feedback interface device **modify an output force** as a function of displacement of said user manipulatable object of said force feedback interface device in accordance with requirements of engaging said graphical surface. “

“modify an output force” means changing the first output force (haptic force) to a second haptic force, and since the previous part of the claim has caused the change in output force, thus the second force profile is the bases for the second output force (second haptic force).

Also, this part of the claim discloses that the actuator modifies an output force as a function of displacement of said user manipulatable object (manipulandum).

Thus this part of the claim 1 of U.S. Patent No. 6,697,086 is the same as the last part of the independent claim 37 and claim 38 of application under examination that states (in claim 37) “outputting a signal associated with a second haptic force, the second haptic force being based on the second force profile and being different from the first haptic force.” and states (in claim 38) “the method of claim 37, wherein at least one actuator is configured to output at least one of the first haptic force and the second haptic force as a function of displacement of a manipulandum”.

7. Claim 39 is rejected over claim 3; claim 41 is rejected over claim 4; claim 42 is rejected over claim 9; claim 43 is rejected over claim 10; claims 44 – 46 and 58 are rejected over claim 5; claim 47 is rejected over claim 7; claim 48 is rejected

over claim 8; claims 49 and 55 are rejected over claim 15; claim 50 is rejected over claim 16; claims 51 and 56 are rejected over claim 17; claim 52 is rejected over claim 19; claim 53 is rejected over claim 20; claim 54 is rejected over claim 21 of U.S. Patent No. 6,697,086.

Claim Objections

8. Claim 38 is objected to because of the following informalities:

In the second line of the claim, the limitation "at least one of the first haptic force and the second haptic force" is confusing. The limitation is confusing because it is not clear if "at least one of" refers to "the first haptic force" or "the second haptic force" or to both. Please improve the clarity and precision of the language.

9. Claim 40 is objected to because of the following informalities:

In the first line of the claim please add the word "wherein" before "the control point being a first control point from a plurality of control points".

10. Claim 42 is objected to because of the following informalities:

In the first line of the claim please add the word "wherein" before "the control point being from a plurality of control points".

11. Claims 49 and 55 are objected to because of the following informalities:

In the claim lines 7-9, the limitation "the data values associated with the movement" is confusing because it is not clear if "the data values associated

with the movement" is referring to the updated data values associated with the movement of the at least one control point.

In the claim line 10, the limitation "outputting via an actuator the haptic force based on the second force profile" is confusing because it is not clear if it refers to the same haptic force associated with the first force profile or refers to a different haptic force. Please improve the clarity and precision of the language.

Claim Rejections - 35 USC § 112

- ◆ The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 44, 49, 55 and 58 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

13. Regarding claims 44 and 58, the disclosure, when filed, does not contain sufficient information regarding to the claimed features, "enable a display of a graphical representation of a first force profile associated with a plurality of

displacements of a manipulandum of a force feedback interface device,

each displacement from the plurality of displacements being associated with its own haptic force". The disclosure, specifically page 32 line 29 – page 33 line 5, only discloses "the displacement of the user object..." and it does not contain sufficient information regarding **a plurality of displacements** of a manipulandum of a force feedback interface device and **its association with the force profile.**

14. Regarding claims 49 and 55, the disclosure, when filed, does not contain sufficient information regarding to the claimed features, "each control point from the plurality of control points associated with **a modifiable portion of the first force profile**". The disclosure does not contain sufficient information regarding **a modifiable portion of force profile.**

15. Regarding claim 52, the disclosure, when filed, does not contain sufficient information regarding to the claimed features "wherein the displaying includes **displaying the graphical representation at a given angle in a two axis plane,** the angle being electively changeable."

The disclosure, specifically page 26 lines 12 – 15, only discloses "Graphical representation 394 is displayed having a shape based on the wave source chosen. Thus, a square wave is graphically displayed in the example of FIG. 10. **The direction of the waveform may also be selected using dial 396 (which is partially obscured by the wave source drop-down menu) and field 397.**" and

further in page 26 line 29 discloses "Direction dial 390 is a graphical object
allowing a user to specify the direction of the effect in two dimensions."

The disclosure does not contain sufficient information regarding "displaying the
graphical representation at a given angle in a two axis plane".

Claim Rejections - 35 USC § 102

- ◆ The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that
form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16. Claims 37-51 and 53-58 are rejected under 35 U.S.C. 102(e) as being anticipated
by U.S Patent 6,433,771 B1 to Yocum et al., hereafter "Yocum".

17. Regarding claim 37, "A method, comprising:

outputting a signal associated with a first haptic force associated with a first force
profile, the first force profile being associated with a graphical representation for
display within a graphical user interface; (Yocum discloses in col. 4 lines 4-12)

receiving a control signal associated with a movement of a control point of the
graphical representation, the movement of the control point operative to change the

first force profile to a second force profile (Yocum discloses in col. 4 lines 30-33 and in Fig. 5, 6a, 6b and Figs 8-13); and

outputting a signal associated with a second haptic force, the second haptic force being based on the second force profile and being different from the first haptic force (Yocum discloses in col. 4 lines 34-40 and col. 4 lines 55-63).

Yocum discloses apparatus and methods for altering one or more of the attributes of a basic force in a force-feedback system. Yocum discloses a method that outputs a signal corresponding to a haptic/ tactile force that includes plurality of attributes (examiner interpret it to be the same as force profile) (col. 3 lines 51-61). Yocum further discloses displaying the slider, knob, or any other suitable form of graphical representation associated with the force profile or attribute within the graphical user interface (col. 4 lines 4-12). Yocum discloses moving / manipulating the slider, knob, or any other suitable form of graphical representation to change the attribute/force profile from one value to another value (in other words modify the force profile) (col. 4 lines 29-39) and discloses in col. 6 lines 9-12 outputting a second haptic force based on the modified force profile (the second force profile) that is different from the first profile.

18. Regarding claim 38, "The method of claim 37, wherein at least one actuator is configured to output at least one of the first haptic force and the second haptic force as a function of displacement of a manipulandum." Yocum discloses in col. 4 lines 45-53.

19. Regarding claim 39, "The method of claim 37, wherein the movement of the control point is operative to modify a stiffness associated with the first force profile to obtain the second force profile." Yocum discloses in col. 2 lines 25-29 and col. 4 lines 45-53 and in Fig. 8 controlling /adjusting attributes such as spring force level (stiffness) in conjunction with any type of user-manipulable member (like joystick).
20. Regarding claim 40, "The method of claim 37, the control point being a first control point from a plurality of control points, wherein the movement of at least the first control point and a second control point from the plurality of control points being operative to modify a slope associated with the first force profile." Yocum discloses in abstract lines 1-4 and in col. 4 lines 29-32 a force pattern including a plurality of attributes (force profile). "slop" is included in the plurality of attributes and therefore the disclosed plurality of controls (col. 4 lines 29-32) are able to alter or set specific attributes such as a slop.
21. Regarding claim 41, "The method of claim 37, wherein the movement of the control point is operative to modify a damping parameter associated with the first force profile." Yocum discloses in col. 2 lines 25-29 and col. 4 lines 45-53 and fig. 11 controlling /adjusting attributes such as vibration amplitude level (damping

parameter) in conjunction with any type of user-manipulable member (like joystick).

22. Regarding claim 42, "The method of claim 37, the control point being from a plurality of control points, wherein each control point from the plurality of control points is independently moveable." Yocum discloses in col. 4 lines 29-32 and in fig. 5 multiple controls (control points) and each of them is independently movable as illustrated in Fig. 6a, b, Fig. 8 and Fig. 13.

23. Regarding claim 43, "The method of claim 37, wherein the second force profile is symmetrical about a midpoint independent of the movement of the control point." Yocum discloses in col. 4 lines 55-58 and in Fig. 13.

24. Claim 44 is the same as claim 37 and therefore is rejected under the same rational.

25. Regarding claim 45, "The method of claim 44, wherein the haptic force is based at least in part on a velocity of the manipulandum." Yocum discloses in col. 3 lines 29-31 and in lines 36-39 that a force pattern is generated in response to the motion of the user input where user input may take the form of any movable member. Since velocity is the speed of motion therefore the generated force (haptic force) is in part based on the velocity of the manipulandum/ movable member.

26. Regarding claim 46, "The method of claim 44, wherein the first force profile and the second force profile are associated with a characteristic of a liquid." Yocum discloses in abstract lines 1-4 and in col. 4 lines 29-32 a force pattern including a plurality of attributes (force profile). "characteristic of a liquid" is included in the plurality of attributes.
27. Regarding claim 47, "The method of claim 44, wherein the first force profile and the second force profile are associated with a characteristic of a liquid, at least one control point from the plurality of control points enabling modification of a viscosity of the liquid." Yocum discloses in abstract lines 1-4 and in col. 4 lines 29-32 a force pattern including a plurality of attributes (force profile). "characteristic of a liquid" is included in the plurality of attributes and therefore the disclosed plurality of controls are able to alter or set specific attributes such as a viscosity of the liquid.
28. Regarding claim 48, "The method of claim 44, wherein the first force profile and the second force profile are associated with a characteristic of a liquid, at least two control points from the plurality of control points enabling the modification of a flow of the liquid." Yocum discloses in abstract lines 1-4 and in col. 4 lines 29-32 a force pattern including a plurality of attributes (force profile). "characteristic of a liquid" is included in the plurality of attributes and therefore the disclosed

plurality of controls (col. 4 lines 29-32) are able to alter or set specific attributes such as a flow of the liquid.

29. Claim 49 is the same as claim 37 and therefore is rejected under the same rationale.

30. Regarding claim 50, "The method of claim 49, wherein the graphical representation includes a spatial grid". Yocum discloses in col. 4 lines 4-12 displaying any suitable form of graphical representation associated with the force profile or attribute within the graphical user interface and therefore the spatial grid is also included.

31. Regarding claim 51, "The method of claim 49, wherein the graphical representation is associated with an axis of motion of a manipulatable object of a force feedback interface device, the manipulatable object being moveable in a plurality degrees of freedom." Yocum discloses in col. 3 lines 46-54.

32. Regarding claim 53, "The method of claim 49, wherein the graphical representation indicates a direction of the haptic force based on a direction parameter." Yocum discloses in col. 4 lines 45-53 and in Fig. 12 phase as an attribute of a force and since the phase is the same as angle therefore the direction of the force can be indicated based on the phase parameter.

33. Regarding claim 54, "The method of claim 49, wherein the graphical representation indicates a magnitude of the haptic force based on a magnitude parameter." Yocum discloses in col. 5 lines 23-27.
34. Claim 55 recites a processor-readable medium that has code representing instructions to cause a processor to execute the method of claim 49. It is inherent to have a medium configured to store or transport computer readable code in a computer system. For example compact disc has been included and used in the computer systems since 1990s or magnetic data storage devices have been used since 1980s.
35. Claim 56 is the same as claim 51 and therefore is rejected under the same rationale.
36. Claim 57 recites a processor-readable medium that has code representing instructions to cause a processor to execute the method of claim 37. It is inherent to have a medium configured to store or transport computer readable code in a computer system. For example compact disc has been included and used in the computer systems since 1990s or magnetic data storage devices have been used since 1980s.
37. Claim 58 recites a processor-readable medium that has code representing instructions to cause a processor to execute the method of claim 44. It is inherent

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to have a medium configured to store or transport computer readable code in a computer system. For example compact disc has been included and used in the computer systems since 1990s or magnetic data storage devices have been used since 1980s.

Conclusion

38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Faranak Fouladi** whose telephone number is **(571) 272-7689**. The examiner can normally be reached on Mon-Fri from 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Patrick Edouard** can be reach at **(571) 272-7603**.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is **(571) 272- 2600**.

Faranak Fouladi-Semnani

Patent Examiner
Art Unit 2674

March 30, 2005



PATRICK N. EDOUARD
PRIMARY EXAMINER